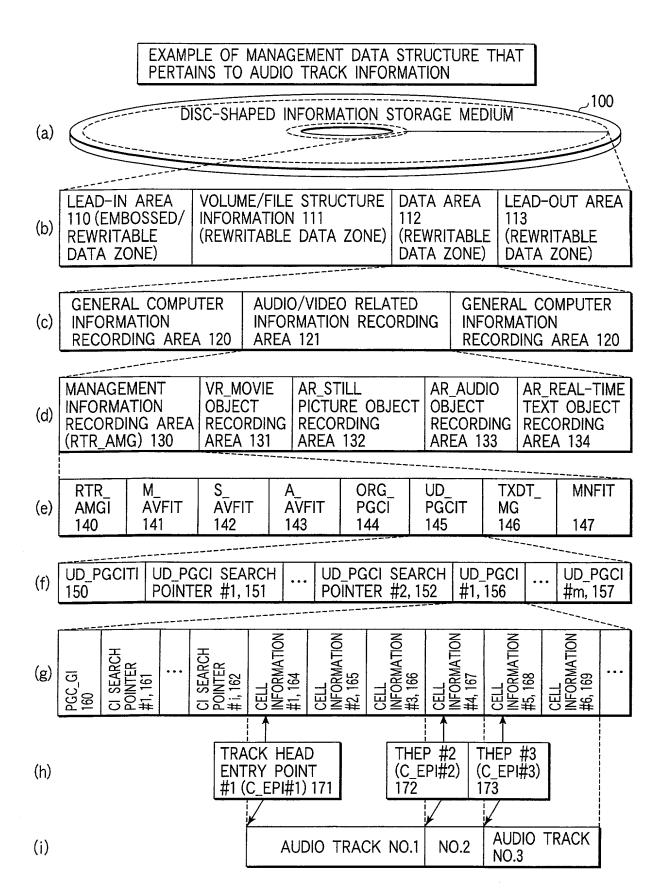
OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 1_ OF_43_



F I G. 1

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>2</u> OF <u>43</u>

DIRECTORY STRUCTURE OF STILL PICTURE FILE, AUDIO FILE, AND TEXT FILE ASSOCIATED WITH RECORDABLE/REPRODUCIBLE AUDIO INFORMATION RECORDED IN INFORMATION STORAGE MEDIUM

ROOT DIRECTORY \ 200

SUBDIRECTORY 201

DVD_RTAV (DIGITAL VERSATILE DISC REAL-TIME AUDIO VIDEO) DIRECTORY 210

202

AR MANGR.IFO 211

(MANAGER INFORMATION OBJECT OF AUDIO RECORDING) (MANAGEMENT INFORMATION RECORDING AREA 130)

VR MOVIE.VRO 212

(MOVIE OBJECT OF VIDEO RECORDING) (VR MOVIE OBJECT RECORDING AREA 131)

AR STILL.ARO 213

(STILL PICTURE OBJECT OF AUDIO RECORDING; AR STILL.ARO) (AR_STILL PICTURE OBJECT RECORDING AREA 132)

AR AUDIO.ARO 221

(AUDIO OBJECT OF AUDIO RECORDING; AR AUDIO, ARO) (AR_AUDIO OBJECT RECORDING AREA 133)

AR RT TEXT.ARO 222

(REAL-TIME TEXT OBJECT OF AUDIO RECORDING) (AR REAL-TIME OBJECT RECORDING AREA 134)

AR MANGR.BUP 215

(BACKUP OF MANAGER INFORMATION OF AUDIO RECORDING) (MANAGEMENT INFORMATION RECORDING AREA 130)

OTHER SUBDIRECTORIES 230

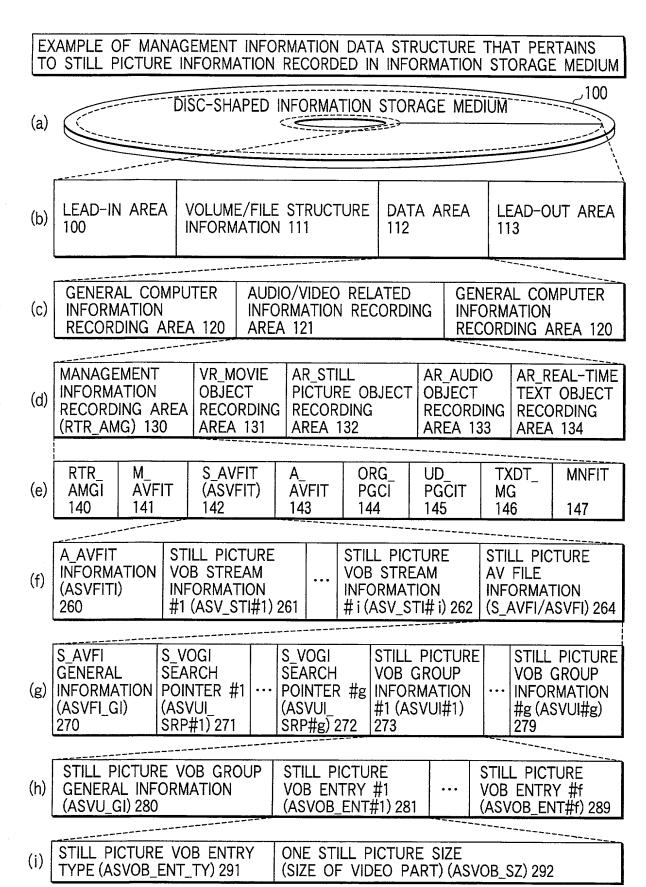
OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 3_OF_43_

EXAMPLE OF MANAGEMENT INFORMATION DATA STRUCTURE THAT PERTAINS TO AUDIO INFORMATION RECORDED IN INFORMATION STORAGE MEDIUM

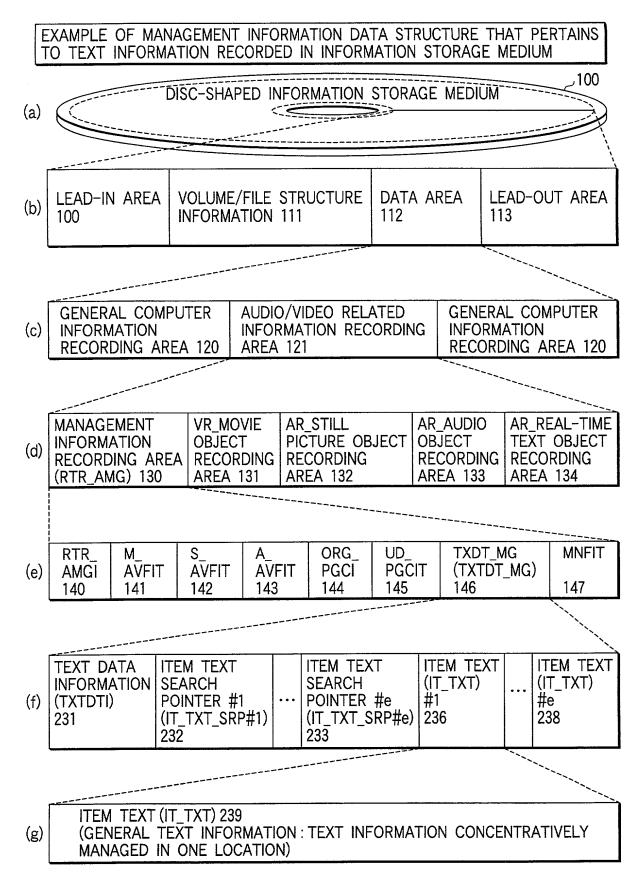
	TO AUDIO INFO	RMATION	RECOR	DED IN IN	FORMA	TION S	TORA	GE ME	DIUM	
(a)		DISC-SI	HAPED IN	NFORMAT	ION STO	ORAGE	MEDI	JM		100
(b)	LEAD-IN AREA		ME/FILE MATION	FILE STRUCTURE DATA AREA LEAD-O				-OUT	AREA	
(c)	GENERAL COMPUTER AUDIO/VIDEO RELATED GENERAL COMPUTER INFORMATION RECORDING RECORDING AREA 120 AREA 121 RECORDING AREA 120									
(d)	MANAGEMENT INFORMATION RECORDING A (RTR_AMG) 13	OBJ REA REC	MOVIE ECT ORDING (A 131	AR_STIL PICTURE RECORD AREA 13	OBJEC ING	CT OB.	AUDIO JECT CORDII EA 133	TE NG RE	R_REAL XT OE CORD REA 13	ING
(e)	RTR_ M_ AMGI AVF 140 141	IT S_ IT AVF 142		AVFIT UDFIT) 3	ORG_ PGCI 144		CIT	TXDT MG 146		INFIT 47
(f)	A_AVFIT INFORMATION (AUD_FITI) 180 AUDIO_OBJECT STREAM	INFORMATION #1 (AUD_STI#1) 181	: AUDIO OBJECT STRFAM	INFORMATION #k (AUD_STI#k) 182	AUDIO AV FILE INFORMATION	REAL-TIME	STREAM INFORMATION	#1, 186	REAL-TIME	INFORMATION 189
(g)	AUDIO AV FILE GENERAL INFORMATION (AUDFI_GI) 190		₹ #1	AOBI SEARCH POINTER (AOBI_ SRP#i)	I OI R#i IN (A	UDIO BJECT IFORMA AOBI) #		C	LUDIO BJECT NFORM AOBI) #	ATION
(h)	AUDIO OBJEC GENERAL INI (AOB_GI/AOE	FORMATIC	ON UI	JDIO OBJ NIT ENTR .OBU_ENT	Y #1	• •	٠ ر	INIT E	OBJEC NTRY ENT#h	#h
(i)	AUDIO OBJECTUNIT DATA SIZE (AOBU_SZ 251	TIME (FOR EXA	UNIT PE MPLE, 1 RESPOND	SEC→		POSI ADDI	TION (TEXT DIFFER (MAY 1 253	RENCE

FIG.3

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F I G. 5

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>6</u> OF <u>43</u>

WINDOW IMAGE UPON CREATION

		ORIGINAL TRACK	1
TRACK TITLE 3	PICTURE 5	DISPLAY MODE 7	TIME CHART 11
AUTOMATIC		SLIDESHOW SEQUENTIAL	A B C D V// V/ 130 0 45 68 107 130
FIRST LOVE		SLIDESHOW SHUFFLE	A B Y////1 0 52 105
IN MY ROOM		BROWSABLE SEQUENTIAL	
ANOTHER CHANCE	≫ []	BROWSABLE RANDOM	A B C 7//////////////////////////////////
	••••	••••	

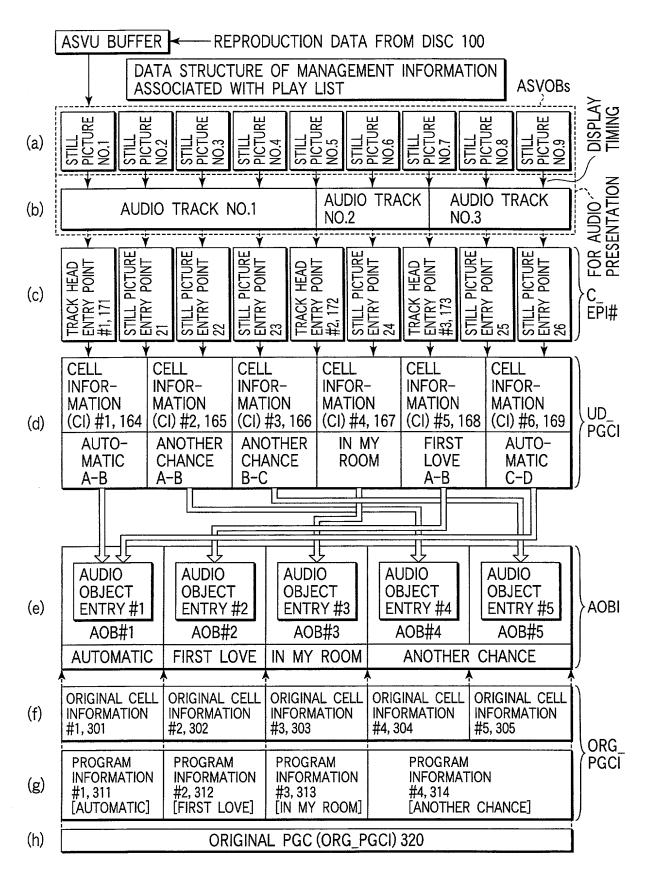
FIG. 6A

	PLAY LI	ST #1 2		
NEW TRACK TITLE 4	MIXING RATE 9	DISPLAY MODE 8	STILL 10	PICTURE 6
NEW TRACK No.1 (C1 #1 164 +C1 #1 165 +C1 #1 166	AUTOMATIC A-B ANOTHER CHANCE A-B ANOTHER CHANCE B-C	SLIDESHOW SEQUENTIAL	ORIGINAL	
NEW TRACK No.2 (C1 #4 167)	IN MY ROOM	BROWSABLE RANDOM	NEWLY SET	
NEW TRACK No.3 (C1 #5 168 (+C1 #6 169)	FIRST LOVE A-B & AUTOMATIC C-D	SLIDESHOW SEQUENTIAL	ORIGINAL	<u>.</u>
		• • • • •	• • • • •	

FIG.6B

The sent son the first

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 7_OF_43_



F I G. 7

(f)

RELATIONSHIP BETWEEN PLAY LIST AND AUDIO OBJECT FILE PICTURE NO.3 STILL PICTURE NO.7 STILL PICTURE NO.2 STILL PICTURE NO.4 PICTURE NO.5 PICTURE NO:6 (a) AUDIO TRACK **AUDIO TRACK** (b) AUDIO TRACK NO.1 NO.2 NO.3 PICTURE / POINT HEAD POINT HEAD POINT (c) TRACK ENTRY #2, 172 STILL P ENTRY 26 TRACK ENTRY #1,171 STILL P ENTRY 21 STILL P ENTRY 22 STILL P ENTRY 23 TRACK ENTRY #3, 173 STILL P ENTRY 25 STILL P ENTRY 24 **CELL CELL CELL CELL CELL CELL** INFOR-INFOR-INFOR-INFOR-INFOR-INFOR-**MATION MATION MATION MATION MATION MATION** #2, 165 #3, 166 #4, 167 **#**5, 168 #6, 169 #1, 164 (d) AUTO-**ANOTHER ANOTHER** IN MY **FIRST** AUTO-**MATIC MATIC CHANCE** CHANCE **ROOM** LOVE B-C A-B A-B A-B C-D **AUDIO AUDIO AUDIO AUDIO AUDIO OBJECT** OBJECT **OBJECT OBJECT OBJECT** ENTRY #1 ENTRY #2 ENTRY #3 ENTRY #4 ENTRY #5 (e) AOB#1 AOB#2 AOB#4 AOB#5 AOB#3 [AUTOMATIC] [FIRST LOVE] IN MY ANOTHER[®] ANOTHER] [ROOM] CHANCE CHANCE A-B C-D **AUTOMATIC** FIRST LOVE IN MY ROOM ANOTHER CHANCE

F1G.8

AR AUDIO.ARO 221 (AUDIO OBJECT FILE)

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 9_OF_43_

COMPARISON OF INFORMATION CONTENTS RECORDED IN TRACK HEAD ENTRY POINT (PROGRAM INFORMATION) AND STILL PICTURE ENTRY POINT

©ENTRY POINT TYPE INFORMATION (EP_TY) …IDENTIFICATION INFORMATION INDICATING TRACK HEAD ENTRY POINT OR STILL PICTURE ENTRY POINT ◎INFORMATION (EP_PTM & RA_DUR) OF DISPLAY RANGE OF REPRESENTATIVE AUDIO (ENTRY POINT FOR REPRESENTATIVE AUDIO) INDICATING CONTENTS OF CORRESPONDING AUDIO TRACK …DESIGNATED BY PLAYBACK START TIME AND PLAYBACK END TIME IN CORRESPONDING AUDIO TRACK ◎INFORMATION (REP_PICTI) FOR DESIGNATING THE SAVING LOCATION OF REPRESENTATIVE IMAGE THAT REPRESENTS CONTENTS OF CORRESPONDING AUDIO TRACK …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ○INFORMATION FOR DESIGNATING THE SAVING LOCATION OF STILL PICTURE TO BE DISPLAYED FIRST UPON PLAYBACK OF CORRESPONDING AUDIO TRACK …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ○TEXT INFORMATION (PRIMARY TEXT INFORMATION PRM_TXTI) UNIQUE TO CORRESPONDING AUDIO TRACK …TUNE NAME, PLAYER NAME/SINGER NAME, WRITER NAME, ETC.	ENTRY POINT	INFORMATION CONTENTS IN VARIOUS KINDS OF ENTRY POINTS/PROGRAM INFORMATION
(CENTRAL TEXT INFORMATION: ITEM TEXT 237, 238) ©DISPLAY MODE OF STILL PICTURE IN CORRESPONDING AUDIO TRACK (DISPLAY MODE) ···DISPLAY ORDER MODE/DISPLAY TIMING MODE ©DISPLAY TIME RANGE INFORMATION (EP_PTM) OF CORRESPONDING STILL PICTURE ©RELATIONSHIP BETWEEN CORRESPONDING STILL PICTURE CONTENTS AND ORIGINAL TRACK	TRACK HEAD ENTRY POINTS 171 TO 173 OR PROGRAM INFORMATION	©ENTRY POINT TYPE INFORMATION (EP_TY) …IDENTIFICATION INFORMATION INDICATING TRACK HEAD ENTRY POINT OR STILL PICTURE ENTRY POINT ◎INFORMATION (EP_PTM & RA_DUR) OF DISPLAY RANGE OF REPRESENTATIVE AUDIO (ENTRY POINT FOR REPRESENTATIVE AUDIO) INDICATING CONTENTS OF CORRESPONDING AUDIO TRACK …DESIGNATED BY PLAYBACK START TIME AND PLAYBACK END TIME IN CORRESPONDING AUDIO TRACK ◎INFORMATION (REP_PICTI) FOR DESIGNATING THE SAVING LOCATION OF REPRESENTATIVE IMAGE THAT REPRESENTS CONTENTS OF CORRESPONDING AUDIO TRACK …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ◎INFORMATION FOR DESIGNATING THE SAVING LOCATION OF STILL PICTURE TO BE DISPLAYED FIRST UPON PLAYBACK OF CORRESPONDING AUDIO TRACK …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE TO BE DISPLAYED FIRST UPON PLAYBACK OF CORRESPONDING AUDIO TRACK …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ◎TEXT INFORMATION (PRIMARY TEXT INFORMATION PRM_TXTI) UNIQUE TO CORRESPONDING AUDIO TRACK …TUNE NAME, PLAYER NAME/SINGER NAME, WRITER NAME, ETC. ◎ADDITIONAL COMMENT TEXT INFORMATION (IT_TXT_SRPN) (CENTRAL TEXT INFORMATION: ITEM TEXT 237, 238) ©DISPLAY MODE OF STILL PICTURE IN CORRESPONDING AUDIO TRACK (DISPLAY MODE) …DISPLAY ORDER MODE/DISPLAY TIMING MODE ©DISPLAY TIME RANGE INFORMATION (EP_PTM) OF CORRESPONDING STILL PICTURE ©RELATIONSHIP BETWEEN CORRESPONDING STILL
CORRESPONDING STILL PICTURE ©RELATIONSHIP BETWEEN CORRESPONDING STILL PICTURE CONTENTS AND ORIGINAL TRACK		CORRESPONDING STILL PICTURE ©RELATIONSHIP BETWEEN CORRESPONDING STILL PICTURE CONTENTS AND ORIGINAL TRACK "WHETHER SAME STILL PICTURES AS THOSE IN ORIGINAL TRACK ARE DISPLAYED OR UNIQUE STILL

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>10</u> OF <u>43</u>

	©ERASE INHIBITION/PROHIBITION FLAGERASE INHIBITION INFORMATION
STILL PICTURE ENTRY POINTS 21 TO 26	 ○ENTRY POINT TYPE INFORMATION (EP_TY) …IDENTIFICATION INFORMATION INDICATING TRACK HEAD ENTRY POINT OR STILL PICTURE ENTRY POINT ○INFORMATION (ASVOB_ENTN) FOR DESIGNATING THE SAVING LOCATION OF STILL PICTURE TO BE DISPLAYED …DESIGNATED BY S_VOGI SEARCH POINTER NUMBER (STILL PICTURE VOB GROUP NUMBER) AND VOB ENTRY NUMBER THEREIN ○INFORMATION (EP_PTM) FOR DESIGNATING DISPLAY TIMING OF ABOVE STILL PICTURE …DESIGNATES DISPLAY TIME INFORMATION OF CORRESPONDING AUDIO OBJECT TO ADJUST DISPLAY TIMING BETWEEN TWO OBJECTS ○DISPLAY TIME RANGE INFORMATION (MAX_DUR & MIN_DUR) OF CORRESPONDING STILL PICTURE

FIG.9B

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 11 OF 43

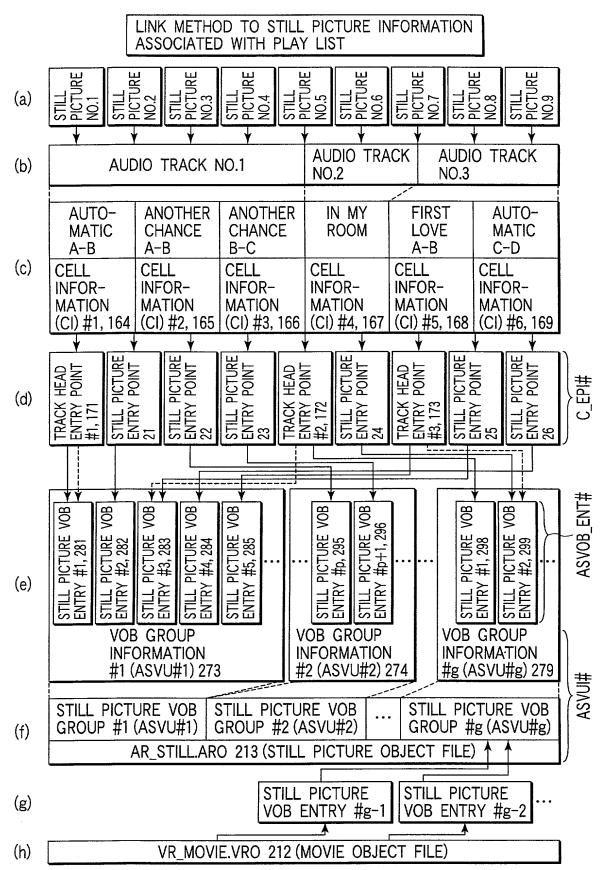
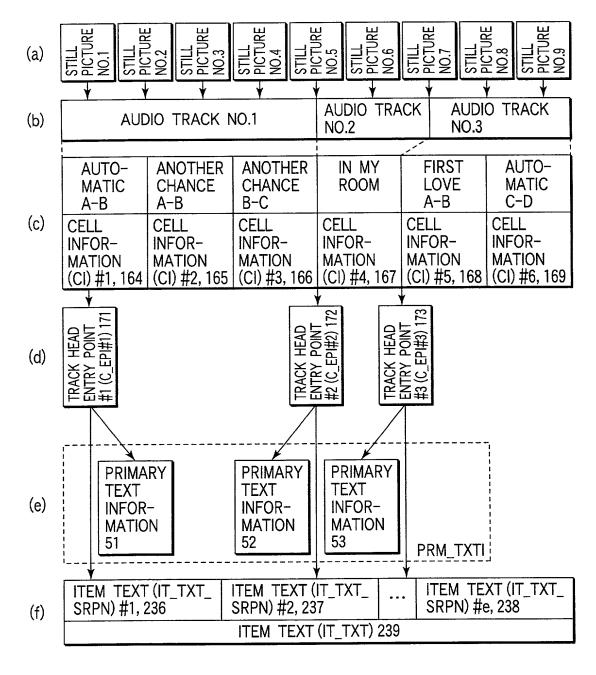


FIG. 10

LINK METHOD TO TEXT INFORMATION ASSOCIATED WITH EACH TRACK



F I G. 11

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 13_OF_43_

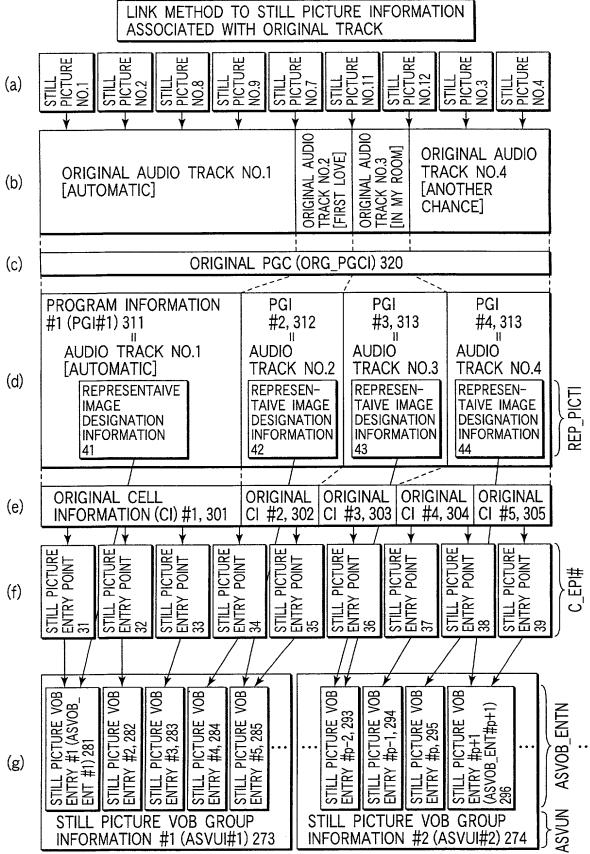


FIG. 12

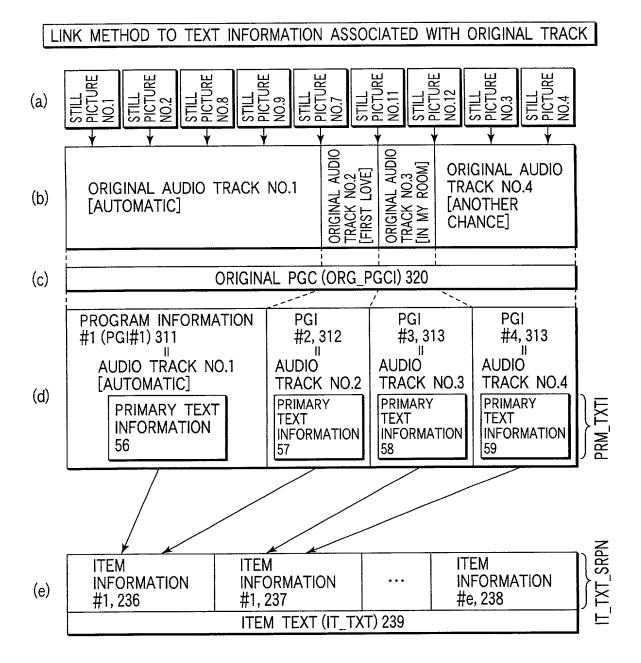
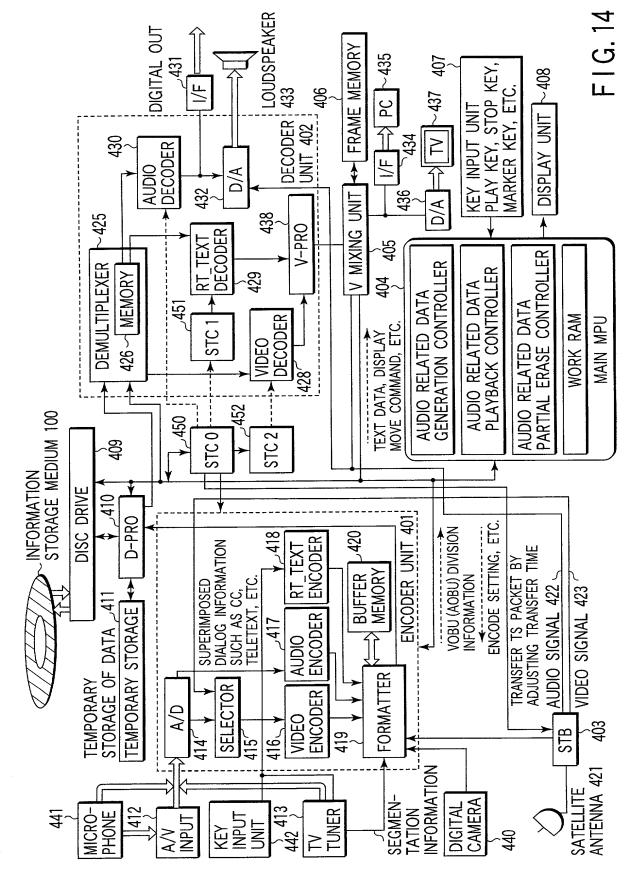


FIG. 13

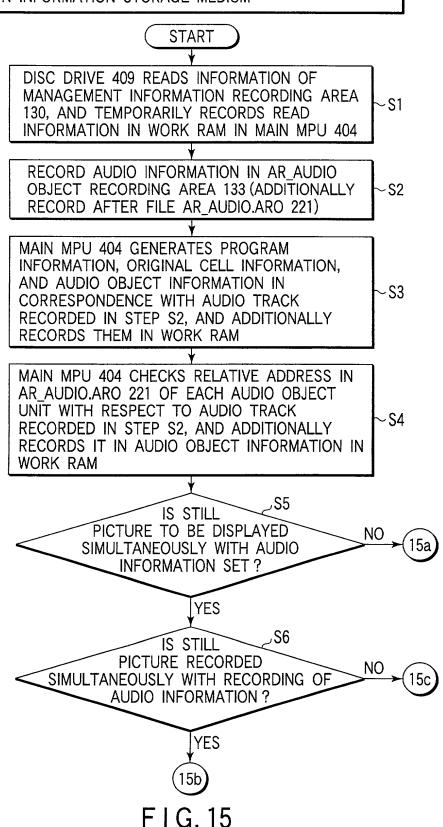
OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL.

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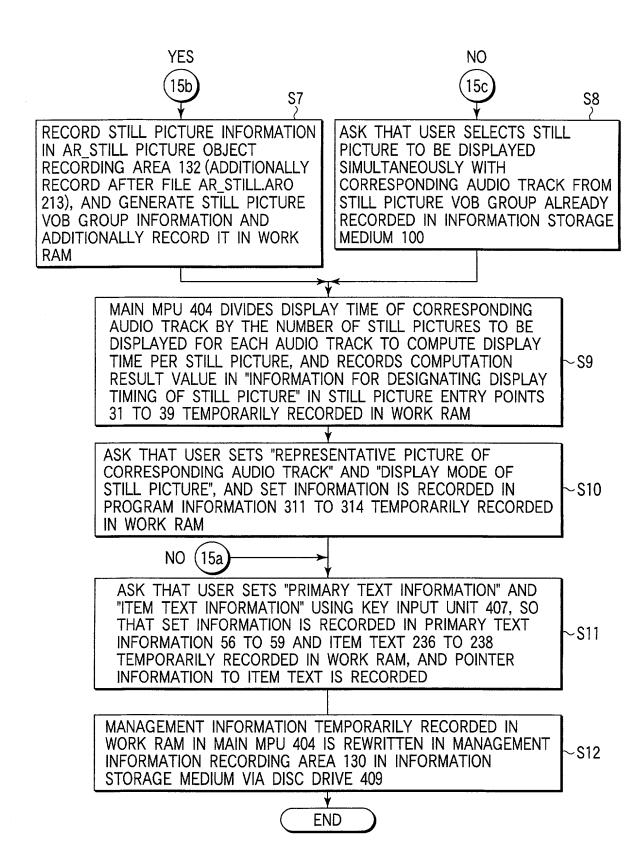


OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>16</u> OF <u>43</u>

RECORDING METHOD OF AUDIO RELATED INFORMATION ON INFORMATION STORAGE MEDIUM



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F I G. 16

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET _18__ OF__43__

PARTIAL ERASE METHOD OF ORIGINAL TRACK

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 409

ASK THAT USER DESIGNATES PARTIAL ERASE RANGE IN ORIGINAL TRACK (USING TIME INFORMATION)

-S22

~S23

~S21

AUDIO OBJECT INFORMATION THAT CONTAINS ORIGINAL TRACK DESIGNATED BY USER IS BROKEN UP INTO TWO AUDIO OBJECTS BEFORE AND AFTER PARTIAL ERASE RANGE DESIGNATED BY USER. EXISTING AUDIO OBJECT INFORMATION IS USED FOR FORMER HALF (BEFORE PARTIAL ERASE RANGE) AUDIO OBJECT, AND MAIN MPU 404 DELETES UNNECESSARY AUDIO OBJECT UNIT ENTRY. LIKEWISE, MAIN MPU 404 GENERATES NEW AUDIO OBJECT INFORMATION FOR LATTER HALF (AFTER PARTIAL ERASE RANGE) AUDIO OBJECT, COPIES CORRESPONDING INFORMATION OF SOURCE AUDIO OBJECT UNIT ENTRY, AND RECORDS IN WORK RAM

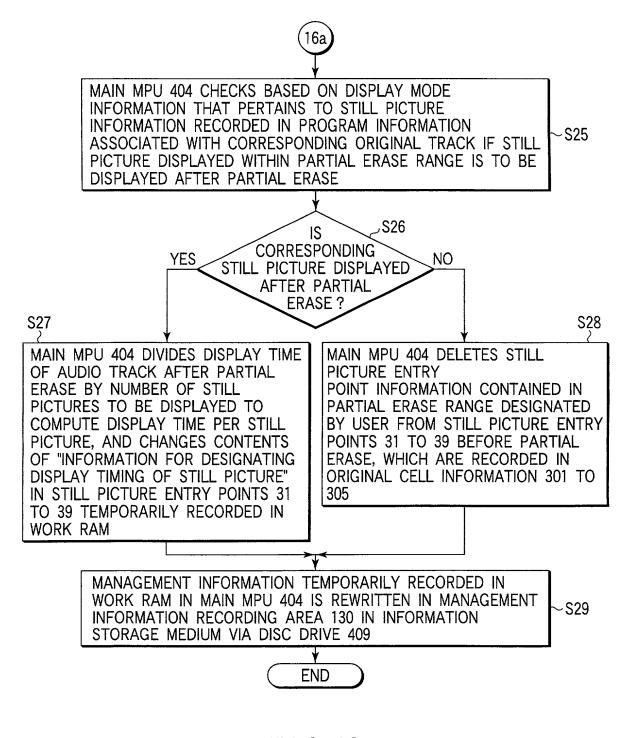
ERASE PARTIAL ERASE RANGE IN FILE AR_AUDIO.ARO 221 THAT RECORDS AUDIO OBJECT

-S24

16a

FIG. 17

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F I G. 18

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>20</u> OF <u>43</u>

GENERATION METHOD OF PLAY LIST CREATION DISPLAY WINDOW

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

MAIN MPU 404 INTERPRETS INFORMATION THAT PERTAINS TO ORIGINAL TRACK RECORDED ON INFORMATION STORAGE MEDIUM 100 BASED ON PROGRAM INFORMATION 311 TO 314 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH ORIGINAL TRACK 1

MAIN MPU 404 EXTRACTS INFORMATION THAT PERTAINS TO TRACK OF EACH PLAY LIST FROM INFORMATION OF TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION 164 TO ~S33 169 THAT FORM USER-DEFINED PGC INFORMATION TABLE 145 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH PLAY LIST 2

MAIN MPU 404 COMPOSITES (OR MIXES) DISPLAY WINDOWS GENERATED IN STEPS S32 AND S33, AND TRANSFERS COMPOSITED WINDOW TO V MIXING UNIT

DISPLAY 408 DISPLAYS DISPLAY WINDOW GENERATED IN MAIN MPU 404 VIA D/A CONVERTER 436

END

FIG. 19

~S32

~S31

-S34

~S35

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 21_ OF_43_

CREATION METHOD OF PLAY LIST

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

~S41

-S42

~S43

-S45

-S46

DISPLAY WINDOW OF ORIGINAL TRACK I AND PLAY LIST BY STEPS OF FIG. 19

ASK THAT USER INPUTS RELATIONSHIP BETWEEN NEW TRACK TO BE CREATED AND ORIGINAL TRACK WHILE OBSERVING DISPLAYED WINDOW

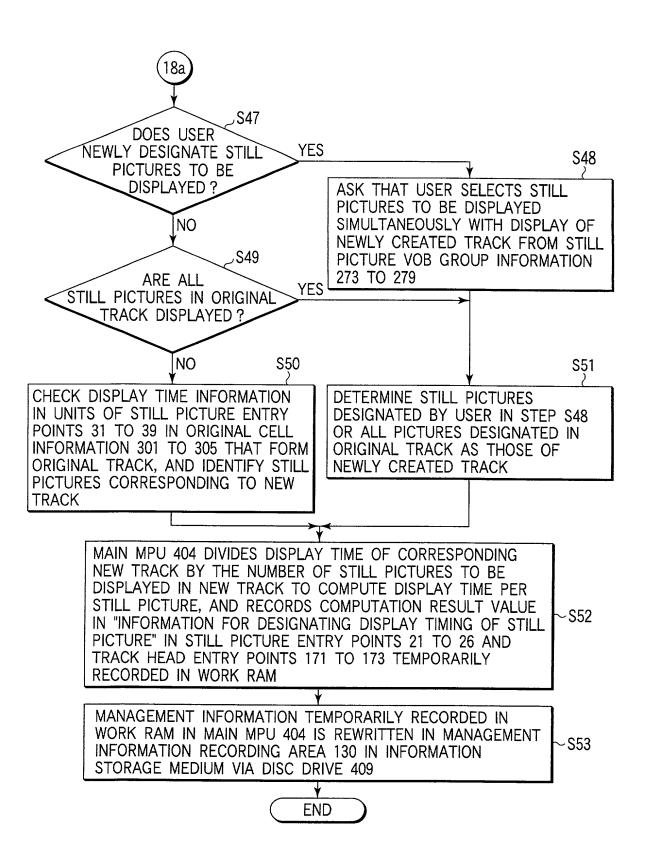
ASK THAT, WHILE OBSERVING DISPLAYED WINDOW, USER INPUTS DISPLAY MODE 8 ASSOCIATED WITH NEW TRACK TO BE CREATED, REPRESENTATIVE PICTURE, AND STILL PICTURE SETUP CONDITION (ORIGINAL: DISPLAY SAME STILL PICTURES AS THOSE SET IN ORIGINAL TRACK, NEWLY SET: USER SETS NEW STILL PICTURES)

ADDITIONALLY SET NEW CELL INFORMATION 164 TO 169 IN CORRESPONDING USER-DEFINED PGC INFORMATION 156, 157 TEMPORARILY RECORDED IN WORK RAM IN MAIN MPU 404, AND ADDITIONALLY RECORD TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION CORRESPONDING TO CELL WHICH IS LOCATED AT HEAD POSITION IN NEW TRACK SET BY USER

ADDITIONALLY RECORD DISPLAY MODE DESIGNATED BY USER, DESIGNATION INFORMATION OF REPRESENTATIVE PICTURE, AND DISPLAY RANGE OF REPRESENTATIVE AUDIO IN TRACK HEAD ENTRY POINTS 171 TO 173 SET IN S45

18a)

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F I G. 21

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 23_OF_43_

METHOD OF USING VIDEO INFORMATION AS STILL PICTURE INFORMATION TO BE DISPLAYED SIMULTANEOUSLY WITH AUDIO INFORMATION

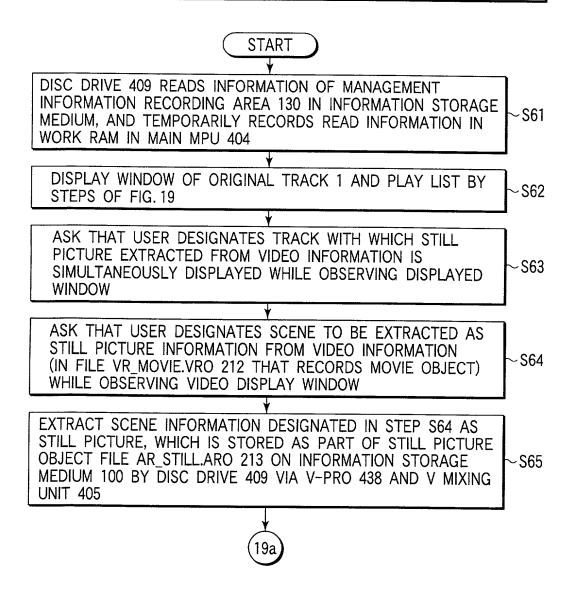


FIG. 22

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 24_ OF_43_

19a

ADDITIONALLY RECORD NEW STILL PICTURE VOB GROUP INFORMATION #g 279 AND STILL PICTURE VOB ENTRY #2 299 IN WORK RAM IN MAIN MPU 404 IN CORRESPONDENCE WITH STILL PICTURE WHICH IS EXTRACTED FROM VIDEO AND RECORDED ON INFORMATION STORAGE MEDIUM 100 IN STEP S65

-S66

MAIN MPU 404 CHANGES STILL PICTURE INFORMATION
DESIGNATED BY TRACK HEAD ENTRY POINT #2 172 AND STILL
PICTURE ENTRY POINT 24 IN CELL INFORMATION #4 167
CORRESPONDING TO TRACK DESIGNATED BY USER IN STEP S63
TO STILL PICTURE VOB ENTRIES #1 298 AND #2 299
GENERATED IN STEP S66

-S67

MAIN MPU 404 DIVIDES DISPLAY TIME OF CORRESPONDING TRACK BY THE NUMBER OF STILL PICTURES TO BE DISPLAYED IN TRACK TO COMPUTE DISPLAY TIME PER STILL PICTURE, AND RECORDS COMPUTATION RESULT IN "INFORMATION FOR DESIGNATING DISPLAY TIMING OF STILL PICTURE" IN STILL PICTURE ENTRY POINT 24 AND TRACK HEAD ENTRY POINT 172 TEMPORARILY RECORDED IN WORK RAM

-S68

MANAGEMENT INFORMATION TEMPORARILY RECORDED IN WORK RAM IN MAIN MPU 404 IS REWRITTEN IN MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM VIA DISC DRIVE 409

-S69

END

FIG. 23

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 25_ OF_43_

PLAYBACK SEQUENCE FOR PLAYING BACK AUDIO INFORMATION IN UNITS OF TRACKS

START

DISC DRIVE 409 READS INFORMATION OF MANAGEMENT INFORMATION RECORDING AREA 130 IN INFORMATION STORAGE MEDIUM, AND TEMPORARILY RECORDS READ INFORMATION IN WORK RAM IN MAIN MPU 404

-S71

MAIN MPU 404 INTERPRETS INFORMATION THAT PERTAINS TO ORIGINAL TRACK RECORDED ON INFORMATION STORAGE MEDIUM 100 BASED ON PROGRAM INFORMATION 311 TO 314 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH ORIGINAL TRACK 1

~S72

MAIN MPU 404 EXTRACTS INFORMATION THAT PERTAINS TO TRACK OF EACH PLAY LIST FROM INFORMATION OF TRACK HEAD ENTRY POINTS 171 TO 173 IN CELL INFORMATION 164 TO 169 THAT FORM USER-DEFINED PGC INFORMATION TABLE 145 TEMPORARILY RECORDED IN WORK RAM, AND GENERATES DISPLAY WINDOW CONTENTS ASSOCIATED WITH PLAY LIST 2

~S73

MAIN MPU 404 COMPOSITES (OR MIXES) DISPLAY WINDOWS GENERATED IN STEPS S72 AND S73, AND TRANSFERS COMPOSITED WINDOW TO V MIXING UNIT

-S74

DISPLAY 408 DISPLAYS DISPLAY WINDOW GENERATED IN MAIN MPU 404 VIA D/A CONVERTER 436

~S75

ASK THAT USER DESIGNATES SPECIFIC AUDIO TRACK IN DISPLAY WINDOW SHOWN IN FIGS. 6A AND/OR 6B DISPLAYED ON DISPLAY 408, AND PRESSES PLAYBACK BUTTON OF REPRESENTATIVE AUDIO

-S76



OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>26</u> OF <u>43</u>



MAIN MPU 404 READS PLAYBACK START TIME AND PLAYBACK END TIME OF REPRESENTATIVE AUDIO FROM "INFORMATION FOR DESIGNATING DISPLAY RANGE OF REPRESENTATIVE AUDIO INDICATING CONTENTS OF CORRESPONDING AUDIO TRACK" IN TRACK HEAD ENTRY POINTS 171 TO 173 OR PROGRAM INFORMATION 311 TO 314 SHOWN IN FIGS. 9A AND 9B

~S77

MAIN MPU 404 COMPUTES PLAYBACK START ADDRESS AND PLAYBACK END ADDRESS IN AR_AUDIO.ARO 221 THAT RECORDS INFORMATION OF REPRESENTATIVE AUDIO USING INFORMATION OF AUDIO OBJECT UNIT ENTRIES #1 241 TO #h 248 IN AUDIO OBJECT INFORMATION #1 196 TO #i 197

~S78

DISC DRIVE 409 PLAYS BACK PREDETERMINED ADDRESS RANGE IN AR_AUDIO.ARO 211, AND AFTER PLAYBACK INFORMATION IS DECODED BY DECODER UNIT 402, DECODED DATA IS OUTPUT AS SOUND VIA LOUDSPEAKER 433, SO THAT USER LISTENS TO THAT REPRESENTATIVE AUDIO TO CHECK IF IT IS AUDIO TRACK HE OR SHE WANTS TO LISTEN TO

~S79

ASK THAT USER DESIGNATES PLAYBACK RANGE AND PRESSES PLAYBACK BUTTON AFTER CONFIRMING CONTENTS BY LISTENING TO REPRESENTATIVE AUDIO

-S80

MAIN MPU 404 DETERMINES RANGE IN ORIGINAL PGC INFORMATION 144 OR USER-DEFINED PGC INFORMATION 156, 157, WHICH CORRESPONDS TO TRACK RANGE DESIGNATED BY USER USING MANAGEMENT INFORMATION TEMPORARILY RECORDED IN WORK RAM

~S81

MAIN MPU 404 PLAYS BACK OBJECT INFORMATION FROM INFORMATION STORAGE MEDIUM 100 IN UNITS OF TRACKS IN ACCORDANCE WITH ORDER OF PROGRAM INFORMATION 311 TO 314 OR OF CELL INFORMATION 164 TO 1169 ARRANGED IN ORIGINAL PGC INFORMATION 144 OR IN USER-DEFINED PGC INFORMATION 156, 157 TEMPORARILY RECORDED IN WORK RAM, AND OUTPUTS AND DISPLAYS IN UNITS OF TRACKS

~S82

END

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 27 OF 43

RTR AUDIO MANAGER

(MANDATORY)

INFORMATION (RTR AMGI)

AUDIO FILE

REAL TIME RECORDING AUDIO MANAGER (RTR_AMG)

INFORMATION TABLE (AUDFIT) (MANDATORY) AUDIO STILL VIDEO FILE INFORMATION TABLE (ASVFIT) (MANDATORY) ORIGINAL PGC UD PGCIT INFORMATION INFORMATION (UD PGCITI) (ORG PGCI) UD PGCI SEARCH (MANDATORY) POINTER #1 USER DEFINED PGC (UD_PGCI_SRP#1) INFORMATION TABLE (UD PGCIT) UD PGCI SEARCH (MANDATORY POINTER #n WHEN UD PGC (UD_PGCI_SRP#n) EXISTS) USER DEFINED PGC TEXT DATA MANAGER **INFORMATION #1** (TXTDT MG) (UD_PGCI#1) (OPTIONAL) MANUFACTURE'S USER DEFINED PGC INFORMATION TABLE INFORMATION #n (MNFIT) (OPTIONAL) (UD_PGCI#n)

(UD_PGCIT)

FIG. 26

PGC INFORMATION #i

(PGCI#i)

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PGC GENERAL INFORMATION (PGC_GI) PG INFORMATION #1 (PGI#1) PG INFORMATION #m (PGI#m) CI SEARCH POINTER #1 (CI_SRP#1) CELL GENERAL INFORMATION (C GI) CI SEARCH POINTER CELL ENTRY POINT #n (CI_SRP#n) **INFORMATION #1** CELL INFORMATION #1 (C_EPI#1) (CI#1) CELL ENTRY POINT CELL INFORMATION #n INFORMATION #n (CI#n) (C_EPI#n)

FIG. 27

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 29 OF 43

ENTRY POINTS IN THE ORIGINAL PGC

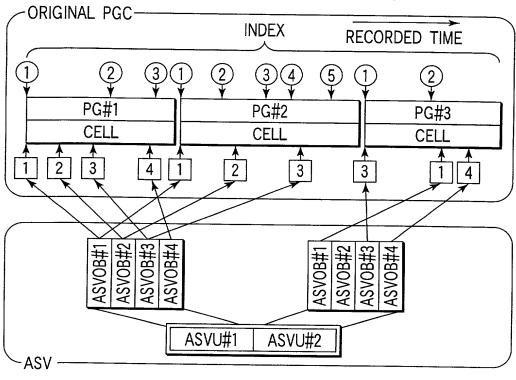


FIG. 28A

ENTRY POINTS IN THE USER DEFINED PGC

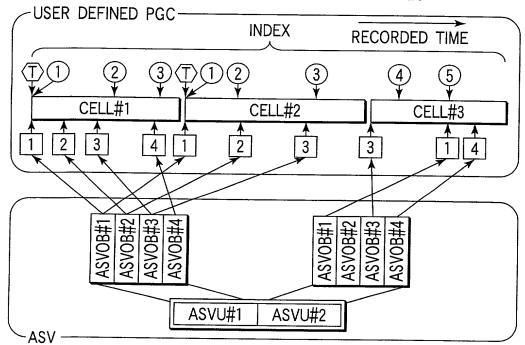


FIG. 28B

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 30 OF 43

C_EPI (TYPE A1)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7 TO 134	PRM_TXT	PRIMARY TEXT INFORMATION	128BYTES
135 TO 136	IT_TXT_SRPN	IT_TXT SEARCH POINTER INFORMATION	2BYTES
137 TO 139	REP_PICTI	REPRESENTATIVE PICTURE INFORMATION	3BYTES
TOTAL			140BYTES

(RBP 0) EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

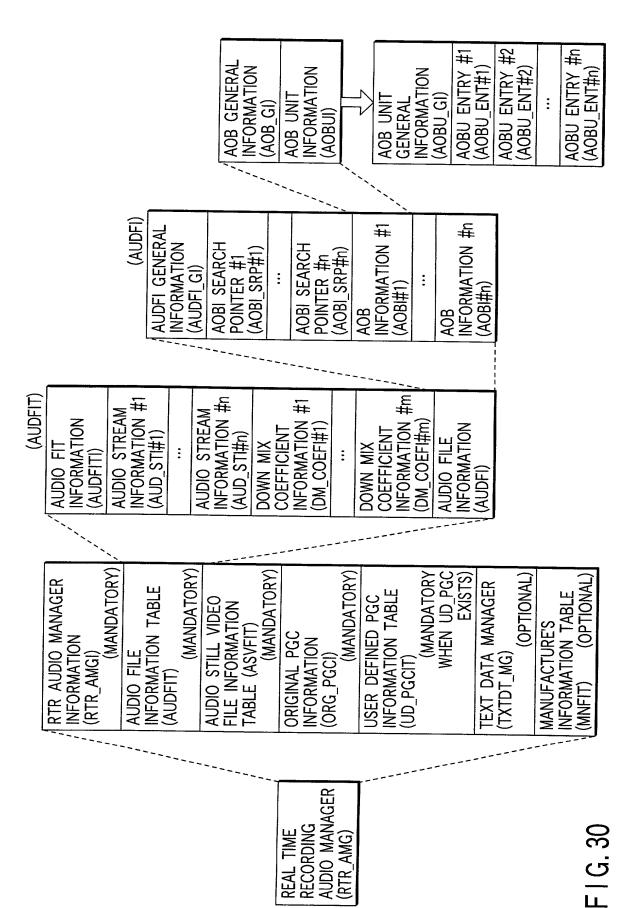
b7	b6	b5	b4	b3	b2	b1	b0
EP_	TY1	EP_	TY2		REZE	RVED	

EP_TY1 ··· '01b' SHALL BE DESCRIBED FOR TYPE A1 ENTRY POINT EP_TY2 ··· '00b' SHALL BE DESCRIBED FOR TYPE A1 ENTRY POINT

EP_PTM ALL BYTES SHALL BE SET TO '00h'

FIG. 29

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AOBU ENTRY (AOBU_ENT)

b15	b14	b13	b12	b11	b10	b9	b8		
			AOBU_SZ	(UPPER)					
b7	b6	b5	b4	b3	b2	b1	b0		
	AOBU_SZ (LOWER)								

AOBU_SZ ··· DESCRIBES THE SIZE OF THIS AOBU. THE SIZE IS SPECIFIED BY THE NUMBER OF PACKS IN THIS AOBU

FIG. 31

[CONCEPT OF AOBU ACCESSES] AOB#2 START ADDRESS RELATIVE LOGICAL BLOCK NUMBER INSIDE FILE AR_AUDIO.ARO FILE AOB#1 AOB#2 AOB#3 AOB# i START ADDRESS RELATIVE LOGICAL BLOCK NUMBER INSIDE AOB#2 AOBU DATÁ SEQUENCE AOBU#2 AOBU#3 AOBU# i AOBU# i AOBU#1 AOBU# 1 **PRESENTATION** TIME STAMPS PRESENTATION OF AOBUS AUDIO FRAME SEQUENCE PRESENTATION TIME **AUDIO FRAMES** MEASURED IN TIME IN AOBU #i **STAMPS PRESENTATION PRESENTATION** START TIME OF AOB#2 START TIME OF AOBU#i

FIG. 32

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 33_OF_43_

[CONCEPT OF AOBU ENTRIES]

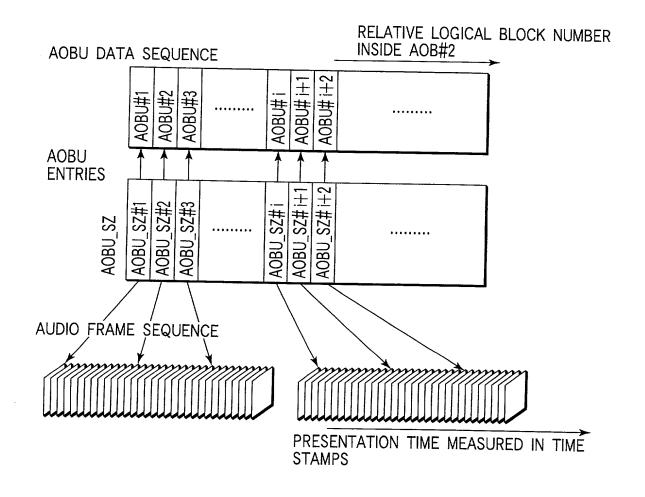


FIG. 33

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET <u>34</u> OF <u>43</u>

							ASVU GENERAL INFORMATION	(I)	AUDIO STILL	OBJECT #1	ASVOB_ENT#1)	:	STILL	#2 FC -	(ASVOB_ENT#n)					
							// ASVU	(ASVU GI)	, AUDIO	// VIDEO OB.	(ASVO		AUDIO STILI	FNTRY	(ASVO					
			(ASVFI)	ASVFI GENERAL	(ASVFI GI)	ASVUI SEARCH	POINTER #1	(1#1K0_0,00K)	ASVIII SEADCH	POINTER #n	(ASVUI_SRP#n)	ASVU	(ASVUI#1)	:	ASVU INFORMATION #n	(ASVUI#n)				
		, · · · ·			```	```	`													
(ASVFIT)	AUDIO STILL VIDEO FIT	INFORMATION (ASVFITI)	AUDIO STILL	VIDEO STREAM INFORMATION #1	(ASV_STI#1)	***	AUDIO STILL	VIDEO SIREAM	(ASV_STI#n)	AUDIO STILL	VIDEO FILE	(ASVFI)								
			``.	· · · · ·									•							
	RTR AUDIO MANAGER INFORMATION	(RTR_AMGI) (MANDATORY)	AUDIO FILE	(AUDFIT)	(MANDATORY)	AUDIO STILL VIDEO	TABLE (ASVFIT)	(MANDATORY)	ORIGINAL PGC	(ORG PGCI)	(MANDATORY)	USER DEFINED PGC	INFORMATION TABLE (UD PGCIT)	(MANDATORY	WHEN UD_PGC EXISTS)	TEXT DATA MANAGER (TXTDT MG)	(OPTIONAL)	MANUFACTURE'S	INFORMATION TABLE (MNFIT) (OPTIONAL)	
											L						!			j
										GER										

F1G.34

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 35_OF_43_

ASVOB_ENT

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	ASVOB_ENT_TY	ASVOB ENTRY TYPE	1BYTE
1	ASVOB_SZ	SIZE OF ASVOB	1BYTE
TOTAL			2BYTES

ASVOB_ENT_TY
DESCRIBES TE IN THE FOLLOWING FORMAT

b15	b14	b13	b12	b11	b10	b9	b8
IVEO	RVED	TE		F	RESERVED		

TE ... 00b: THIS ASVOB IS IN NORMAL STATE

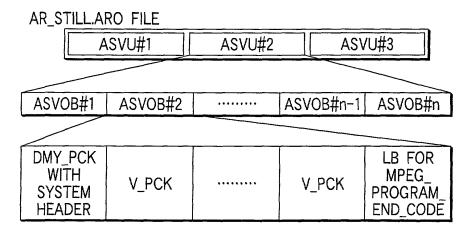
01b: THIS ASVOB IS IN TEMPORARILY ERASED STATE

ASVOB_SZ

DESCRIBES THE SIZE OF ASVOB IN LBs (LOGICAL BLOCKS)

FIG. 35

[STRUCTURE OF THE ASVOB]



OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 36_ OF_43_

[CONCEPT OF ASVOB ACCESS]

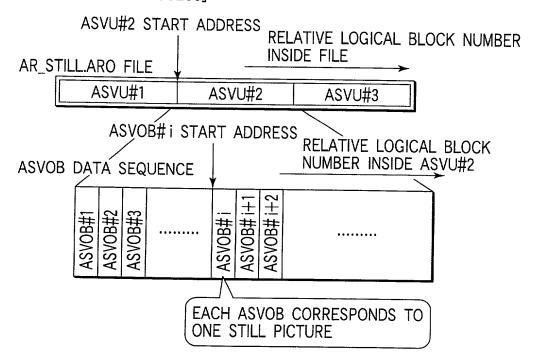


FIG. 37

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 37_ OF_43_

REAL TIME RECORDING AUDIO MANAGER (RTR_AMG) RTR AUDIO MANAGER **INFORMATION** (RTR AMGI) (MANDATORY) AUDIO FILE INFORMATION TABLE (AUDFIT) (MANDATORY) AUDIO STILL VIDEO FILE INFORMATION TABLE (ASVFIT) (MANDATORY) (TXTDT MG) ORIGINAL PGC TEXT DATA INFORMATION INFORMATION (ORG_PGCI) (TXTDTI) (MANDATORY) IT_TXT SEARCH USER DEFINED PGC POINTER #1 INFORMATION TABLE (IT_TXT_SRP#1) (UD_PGCIT) (MANDATORY IT_TXT SEARCH WHEN UD PGC POINTER #n EXISTS) (IT_TXT_SRP#n) TEXT DATA MANAGER ITEM TEXT (TXTDT MG) (IT_TXT) (OPTIONAL) MANUFACTURE'S ITEM TEXT INFORMATION TABLE (MNFIT) (OPTIONAL) (IT_TXT)

FIG. 38

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 38_OF_43_

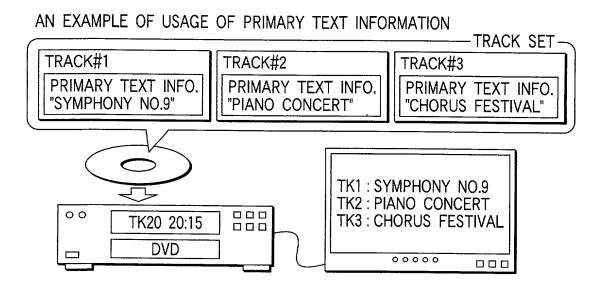


FIG. 39

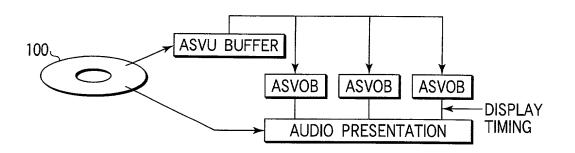


FIG. 40

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL.

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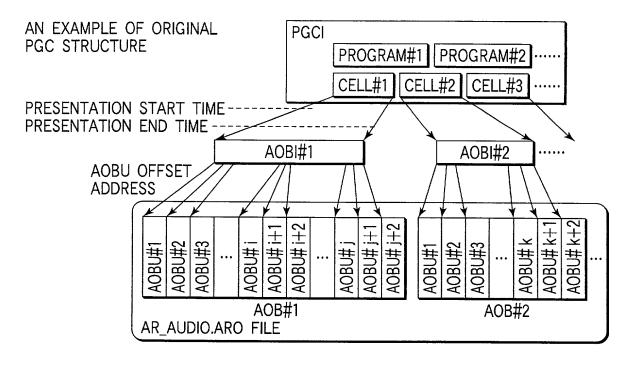


FIG. 41

AN EXAMPLE OF USER DEFINED PGC STRUCTURE

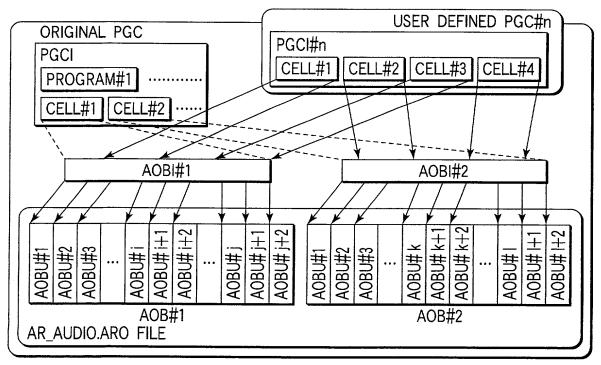
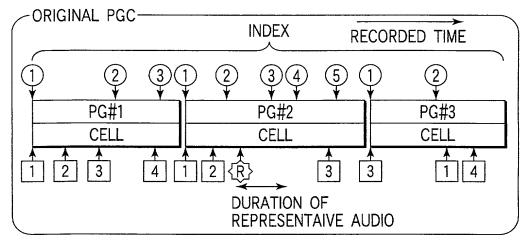


FIG. 42

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 40 OF 43

AN EXAMPLE OF ENTRY POINT FOR REPRESENTATIVE AUDIO



(i): ENTRY POINT FOR INDEX (i=1,2,3,...)

j : ENTRY POINT FOR DISPLAY LIST (j=1,2,3,···)

{R}: ENTRY POINT FOR REPRESENTATIVE AUDIO

FIG. 43

C_EPI (TYPE D2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7 TO 12	RA_DUR	REPRESENTATIVE AUDIO DURATION	6BYTES
TOTAL			13BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
EP.	_TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE D2 ENTRY POINT EP_TY2 ··· '11b' SHALL BE DESCRIBED FOR TYPE D2 ENTRY POINT

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C_EPI (TYPE B1)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	IDXN	INDEX NUMBER	1BYTE
8 TO 135	PRM_TXT	PRIMARY TEXT INFORMATION	128BYTES
TOTAL			136BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
	TY1	EP			RESE	RVED	

EP_TY1 ··· '01b' SHALL BE DESCRIBED FOR TYPE B1 ENTRY POINT EP_TY2 ··· '01b' SHALL BE DESCRIBED FOR TYPE B1 ENTRY POINT

FIG. 45

C_EPI (TYPE B2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	IDXN	INDEX NUMBER	1BYTE
TOTAL			8BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

	b7	b6	b5	b4	b3	b2	b1	b0
Γ	EP	_TY1	EP_			RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE B2 ENTRY POINT EP_TY2 ··· '01b' SHALL BE DESCRIBED FOR TYPE B2 ENTRY POINT

OBLON, SPIVAK, ET AL DOCKET #: 211244US2SDIV INV: HIDEO ANDO, ET AL. SHEET 42_OF_43_

C_EPI (TYPE C2)

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	EP_TY	ENTRY POINT TYPE	1BYTE
1 TO 6	EP_PTM	PTM OF ENTRY POINTS	6BYTES
7	ASVOB_ENTN	ENTRY NUMBER OF ASVOB	1BYTE
8	HOME_DLISTN	HOME DLIST NUMBER	1BYTE
9	S_EFFECT	START EFFECT	1BYTE
10	E_EFFECT	END EFFECT	1BYTE
11 TO 12	MAX_DUR	MAXMUM DURATION TIME	2BYTES
13 TO 14	MIN_DUR	MINIMUM DURATION TIME	2BYTES
TOTAL			15BYTES

EP_TY
DESCRIBES EP TYPE OF THIS ENTRY POINT

b7	b6	b5	b4	b3	b2	b1	b0
EP_	TY1	EP_	TY2		RESE	RVED	

EP_TY1 ··· '00b' SHALL BE DESCRIBED FOR TYPE C2 ENTRY POINT EP_TY2 ··· '10b' SHALL BE DESCRIBED FOR TYPE C2 ENTRY POINT

FIG. 47

PGC_GI

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	RESERVED	RESERVED	1BYTE
1	PG_Ns	NUMBER OF PGs	1BYTE
2 TO 3	CI_SRP_Ns	NUMBER OF CI_SRPs	2BYTES
TOTAL			4BYTES

PG Ns

DESCRIBES THE NUMBER OF PGs IN THIS PGC

IN CASE OF USER DEFINED PGC, PG_Ns SHALL BE SET TO '0'

NOTE: THE MAXIMUM NUMBER OF PGs FOR THE ORIGINAL PGC IS '99'

CI_SRP_Ns

DESCRIBES THE NUMBER OF CI_SRPs IN THIS PGC NOTE: THE MAXIMUM NUMBER OF CI_SRPs IS '999'

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PGI

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
0	RESERVED	RESERVED	1BYTE
1 PG_TY		PROGRAM TYPE	1BYTE
2 TO 3 C_Ns		NUMBER OF CELLS IN THIS PG	2BYTES
4 TO 131 PRM_TXTI		PRIMARY TEXT INFORMATION	128BYTES
132 TO 133	IT_TXT_SRPN	IT_TXT SEARCH POINTER NUMBER	2BYTES
134 TO 141	REP_PICTI	REPRESENTATIVE PICTURE INFORMATION	8BYTES
TOTAL			142BYTES

PG TY

DESCRIBES PROGRAM TYPE OF THIS PG

b7	b6	b5	b4	b3	b2	b1	b0
PROTECT				RESERVED			

PROTECT ... 0b: THIS PG IS NOT IN PROTECTED STATE

1b: THIS PG IS IN PROTECTED STATE

NOTE: WHEN A PG IS IN PROTECTED STATE, ALL THE AOBS REFERRED AND UTILIZED IN THE PRESENTATION OF THAT PG SHALL NOT BE TEMPORARILY OR PERMANENTLY ERASED.

PROTECT FLAGS SHALL NOT BE SET TO '1b' UNLESS ALL THE AOBS AND ASVOBS REFERRED BY THIS PG ARE IN NOMAL STATE

FIG. 49

REP_PICTI

(DESCRIPTION ORDER)

RBP	FIELD NAME	CONTENTS	NUMBER OF BYTES
134 TO 135	ASVUN	ASVU NUMBER	2BYTES
136	ASVOB_ENTN	ASVOB_ENT NUMBER	1BYTE
137 TO 141	RESERVED	RESERVED	5BYTES
TOTAL			8BYTES

ASVUN

DESCRIBES THE ASVU NUMBER IN WHICH THIS REPRESENTATIVE PICTURE FOR TRACK EXISTS

ASVOB ENTN

DESCRIBES THE ASVOB_ENT NUMBER IN WHICH THIS REPRESENTATIVE PICTURE FOR TRACK EXISTS